CONTENTS—JANUARY–MARCH 1990

Hatching eggs sanitized with chlorine dioxide foam: egg hatchability and bactericidal properties
P. H. PATTERSON, S. C. RICKE, M. L. SUNDE, AND D. M. SCHAEFER 1

Efficacy of live vaccines against serologic subtypes of infectious bursal disease virus ..... J. J. GIAMBRONE AND J. CLOSSER 7

Propagation of group II avian adenoviruses in turkey and chicken leukocytes
J. V. VAN DEN HURK 12

Efficacy of avirulent hemorrhagic enteritis virus propagated in turkey leukocyte cultures for vaccination against hemorrhagic enteritis in turkeys
J. V. VAN DEN HURK 26

An avidin-biotin enhanced dot-immunobinding assay for the detection of Mycoplasma gallisepticum and M. synoviae serum antibodies in chickens
D. R. CUMMINS, D. L. REYNOLDS, AND K. R. RHOADES 36

Pathology of experimentally induced quail bronchitis
S. W. JACK AND W. M. REED 44

Characterization and use of monoclonal antibodies to identify Haemophilus paragallinarum serovars
T. YAMAGUCHI, S. TAKIGAMI, Y. IRITANI, AND Y. HAYASHI 52

An enzyme-linked immunosorbent assay for detection of antibodies against Escherichia coli: association between indirect hemagglutination test and survival ..... GABRIEL LEITNER, DORON MELAMED, NAOMY DRABKIN, AND E. DAN HELLER 58

Single and combined infections of specific-pathogen-free chickens with infectious bursal disease virus and an intestinal isolate of reovirus
A. MORADIAN, J. THORSEN, AND R. J. JULIAN 63

Efficacy of toltrazuril and clazuril against experimental infections with Eimeria labbeana and E. columbarum in racing pigeons .. J. VERCRUYSSE 73

Specific antibody responses and generation of antigenic variants in chickens immunized against a virulent avian influenzia virus
VIRGINIA S. HINSHAW, MARTHA G. SHEERAR, AND DIANE LARSEN 80

Light microscopic ultrastructural characterization of cells recovered by respiratory-tract lavage of 2- and 6-week-old chickens
R. M. FULTON, W. M. REED, AND D. B. DENICOLA 87

Preparation of a detailed restriction map of the avian leukosis virus MAV-2(O)
ROSEMARIE E. AURIGEMMA, M. CELESTE SIMON, WILLIAMS S. HAYWARD, AND RALPH E. SMITH 99

Virulence of infectious laryngotracheitis viruses: comparison of modified-live vaccine viruses and North Carolina field isolates
JAMES S. GUY, H. JOHN BARNES, AND LINDA M. MORGAN 106

Effect of breeder vaccination on immunization of progeny against Newcastle disease ..... J. J. GIAMBRONE AND J. GLOSSER 114

Kidney lesions associated with mortality in chickens inoculated with waterfowl influenza viruses
R. D. SLEMONS, L. N. LOCKE, MARTHA G. SHEERAR, R. M. DUNCAN, VIRGINIA S. HINSHAW, AND B. C. EASTERDAY 120

The use of biotin-labeled cDNA probes for the detection of infectious bursal disease viruses
D. J. JACKWOOD, F. S. B. KIBENGE, AND C. C. MERCADO 129

Turkey heterophil chemotaxis to Pasteurella multocida (serotype 3,4)-generated chemotactic factors
KENNETH S. LATIMER, BARRY G. HARMON, JOHN R. GLISSON, INGRID M. KIRCHER, AND JOHN BROWN 137

Infectious bursal disease virus variant from commercial leghorn pullets
N. M. ISMAIL, Y. M. SAIF, W. L. WIGLE, G. B. HAVENSTEIN, AND C. JACKSON 141

Identification of the chicken anemia agent, reproduction of the disease, and serological survey in the United States
BENJAMÍN LUCIO, K. A. SCHAT, AND H. L. SHIVAPRASAD 146

Immune response to oil-emulsion vaccines with single or mixed antigens of Newcastle disease, avian influenza, and infectious bronchitis
ZHIXUN XIE AND HENRY D. STONE 154

Monoclonal antibodies against surface antigens of Pasteurella multocida strain P-1059 ..... MEHRABAN KHOSRAVIANI, TETSUO NUNOYA, AND MASAKAZU MATSUMOTO 163

Chronic myocarditis and circulatory syndrome in a white leghorn strain induced by an avian leukosis virus: light and electron microscopic study
F. GILKA AND J. L. SPENCER 174

Reproducibility of a virus-neutralization test for infectious laryngotracheitis virus ..... JAMES R. ANDREASEN, JR., JOHN BROWN, JOHN R. GLISSON, AND PEDRO VILLEGAS 185

Somatic serotypes of Pasteurella multocida strains isolated from avian hosts (1976–1988) ..... K. R. RHOADES AND R. B. RIMLER 193

Avian Eimeria: invasion in foreign host birds and generation of partial immunity against coccidiosis ..... P. C. AUGUSTINE AND H. D. DANFORTH 196

Pathogenicity and immunosuppressive properties of infectious bursal disease "intermediate" strains
L. A. MAZARIEGOS, P. D. LUKERT, AND JOHN BROWN 203

Research Notes—

Improved preparation of ELISA antigen of infectious bursal disease virus
K. TSUKAMOTO, H. OBATA, AND H. HIHARA 209

Alternative injection sites for a Pasteurella multocida bacterin
JOHN R. GLISSON, JOHN BROWN, I-HSIN NING CHENG, AND R. G. STEWART 214

Regulation of foreign gene in fowlpox virus by a vaccinia virus promoter
DEOKI N. TRIPATHY AND RICCARDO WITTEK 218

Case Reports—

Salmonella typhimurium outbreak in broiler chicken flocks in Mexico
MARIO PADRON N. 221

Cryptosporidiosis in chickens from southern Spain
A. FERNÁNDEZ, M. QUEZADA, M. A. GÓMEZ, J. A. NAVARRO, J. RODRÍGUEZ, AND M. A. SIERRA 224

Pet Bird Medicine—

Potential use of long-acting injectable oxytetracycline for treatment of chlamydiosis in Goffin's cockatoos
K. FLAMMER, D. P. AUCOIN, D. A. WHITT, AND D. K. STYLES 228

Erratum 235

Addendum to: Practical application of nucleic acid techniques to avian disease problems. By H. G. Purchase. Avian Dis. 33:609–614. 1989. 236

Guidelines for authors 237

CONTENTS—APRIL–JUNE 1990

Development of an enzyme-linked immunosorbent assay to detect and quantify adenovirus in chicken tissues
MD. SAIFUDDIN AND COLIN R. WILKS 239

Detection of infectious bronchitis virus antigen from experimentally infected chickens by indirect immunofluorescent assay with monoclonal antibody
KAZUHIRO YAGYU AND SHUICHI OHTA 246

Comparisons of the genomic RNA of Arkansas DPI embryonic passages 10 and 100, Australian T, and Massachusetts 41 strains of infectious bronchitis virus ..... G. D. BUTCHER, J. GELB, JR., AND ELLEN W. COLLISSON 253

The pathogenesis of Pasteurella multocida serotype A:3,4 infection in turkeys: a comparison of two vaccine strains and a field isolate
M. M. PRANTNER, B. G. HARMON, J. R. GLISSON, AND E. A. MAHAFFEY 260

Epidemiologic studies on infectious coryza outbreaks in northern New South Wales, Australia, using serotyping, biotyping, and chromosomal DNA restriction endonuclease analysis
P. J. BLACKALL, C. J. MORROW, A. MCINNES, L. E. EAVES, AND D. G. ROGERS 267

Replication of a waterfowl-origin influenza virus in the kidney and intestine of chickens ..... RICHARD D. SLEMONS AND DAVID E. SWAYNE 277

Renal pathology in specific-pathogen-free chickens inoculated with a waterfowl-origin type A influenza virus
DAVID E. SWAYNE AND RICHARD D. SLEMONS 285

Experimental infection in specific-pathogen-free chicks with avian reovirus and avian nephritis virus isolated from broiler chicks showing runting syndrome ..... J. SHIRAI, H. OBATA, K. NAKAMURA, K. FURUTA, H. HIHARA, AND H. KAWAMURA 295

Characterization of avian reovirus strain-specific polymorphisms
F. DUSTAN CLARK, YAWEI NI, ELLEN W. COLLISSON, AND MAURICE C. KEMP 304

Homogeneity of characteristics of Pasteurella multocida isolated from turkeys and wildlife in California, 1985–88
KURT P. SNIPES, DWIGHT C. HIRSH, RICK W. KASTEN, TIM E. CARPENTER, DAVID W. HIRD, AND RICHARD H. MCCAPES 315

Use of an avidin-biotin enhanced dot-immunobinding assay to detect antibodies for avian mycoplasma in sera from Iowa market turkeys
D. R. CUMMINS AND D. L. REYNOLDS 321

Random cDNA probes to infectious bursal disease virus
VERGIL S. DAVIS AND JOHN A. BOYLE 329

Isolation of serotype 2 Marek's disease virus from birds belonging to genus Gallus in Japan
JAMES A. LIN, HIROSHI KITAGAWA, MITSURU ONO, RIKA IWANAGA, HIROSHI KODAMA, AND TAKESHI MIKAMI 336

Transfection of chicken embryo fibroblasts with Marek's disease virus DNA
ROBIN W. MORGAN, JOHN L. CANTELLO, AND CAROLINE H. MCDERMOTT 345

Production and preliminary characterization of monoclonal antibodies to chicken anemia agent
M. S. MCNULTY, D. P. MACKIE, D. A. POLLOCK, J. MCNAIR, D. TODD, K. A. MAWHINNEY, T. J. CONNOR, AND F. MCNEILLY 352

Development of an enzyme-linked immunosorbent assay to detect serum antibody to chicken anemia agent
D. Todd, D. P. Mackie, K. A. Mawhinney, T. J. Connor, F. McNeilly, and M. S. McNulty 359

Serological classification of Japanese isolates of Haemophilus paragallinarum using two serovar-specific monoclonal antibodies
T. Yamaguchi, K. Kato, S. Takigami, Y. Iritani, and Y. Hayashi 364

Comparison of phytohemagglutinin-induced cutaneous hypersensitivity reactions in the interdigital skin of broiler and layer chicks
Donald E. Corrier 369

Detection of fowlpox virus DNA by in situ hybridization using a biotinylated probe ..... E. Tanizaki, T. Horiuchi, M. Niikura, T. Mikami, and N. Wakamiya 374

Pasteurella multocida colonization and invasion in experimentally exposed turkey poults ..... K. R. Rhoades and R. B. Rimler 381

Virulence and toxigenicity of capsular serogroup D Pasteurella multocida strains isolated from avian hosts .... K. R. Rhoades and R. B. Rimler 384

Reduction of Salmonella typhimurium concentration in broiler chickens by milk or whey
J. R. Deloach, B. A. Oyofo, Donald E. Corrier, L. F. Kubena, R. L. Ziprin, and J. O. Norman 389

Blood clearance of radiolabeled gold colloid by the turkey mononuclear phagocytic system ..... M. F. McEntee and M. D. Ficken 393

Avian influenza viruses from migratory and resident ducks of coastal Louisiana ..... D. E. Stallknecht, S. M. Shane, P. J. Zwank, D. A. Senne, and M. T. Kearney 398

Persistence of avian influenza viruses in water
D. E. Stallknecht, S. M. Shane, M. T. Kearney, and P. J. Zwank 406

Effects of pH, temperature, and salinity on persistence of avian influenza viruses in water
D. E. Stallknecht, M. T. Kearney, S. M. Shane, and P. J. Zwank 412

Differentiation of field isolates of Pasteurella multocida serotype 3,4 from live vaccine strain by genotypic characterization
Kurt P. Snipes, Dwight C. Hirsh, Rick W. Kasten, Tim E. Carpenter, David W. Hird, and Richard H. McCapes 419

A double-antibody enzyme-linked immunosorbent assay for the detection of turkey hemorrhagic enteritis virus antibody and antigen
K. NAZERIAN, L. F. LEE, AND W. S. PAYNE 425

Comparative toxicity of coniine, an alkaloid of Conium maculatum (poison hemlock), in chickens, quails, and turkeys
A. A. FRANK AND W. M. REED 433

Production of Salmonella enteritidis-contaminated eggs by experimentally infected hens ..... RICHARD K. GAST AND C. W. BEARD 438

Stunting syndrome in turkeys. Development of an experimental model
C. ROSELINA ANGEL, JERRY L. SELL, AND DARRELL W. TRAMPEL 447

Experimental biliary cryptosporidiosis in broiler chickens
J. M. HATKIN, D. S. LINDSAY, J. J. GIAMBRONE, F. J. HOERR, AND B. L. BLAGBURN 454

Research Notes—

Effect of Cryptosporidium baileyi on broilers infected at 26 days of age
MARK A. GOODWIN AND JOHN BROWN 458

Salmonella typhimurium penetration through the eggshell of hatching eggs
MARIO PADRON N. 463

Cloning and expression in Escherichia coli of Mycoplasma gallisepticum antigens recognized by sera from infected chickens
DUNCAN C. KRAUSE, STANLEY H. KLEVEN, AND KYUNGOK K. LEE 466

Investigation of problems associated with intramuscular breast injection of oil-adjuvanted killed vaccines in chickens
R. DROUAL, A. A. BICKFORD, B. R. CHARLTON, AND D. R. KUNEY 473

Identification of the cross-reactive antigens between Marek's disease virus and pseudorabies virus by monoclonal antibodies
K. NAKAJIMA, C. H. KWEON, S. H. AN, T. SHIBAYAMA, N. WAKAMIYA, S. KATO, AND K. HIRAI 479

Case Reports—

An outbreak of Eimeria necatrix coccidiosis in breeder pullets: analysis of immediate and possible long-term effects on performance
LARRY R. MCDOUGALD, A. LORRAINE FULLER, AND BIRCH L. MCMURRAY 485

Suspected ethanol toxicosis in two wild cedar waxwings
S. D. FITZGERALD, J. M. SULLIVAN, AND R. J. EVERSON 488

Dermal necrosis caused by Pasteurella multocida infection in turkeys
S. E. GLASS AND B. PANIGRAHY 491

Pet Bird Medicine: Case Reports—

Aeromonas hydrophila as cause of hemorrhagic septicemia in a ground-hornbill (Bucorvus abyssinicus) R. A. Ocholi and J. O. Kalejaiye 495

Congenital extra-hepatic biliary cyst in a Congo African grey parrot (Psittacus erithacus erithacus) .... Kenneth N. Opengart, Thomas P. Brown, Steven A. Osofsky, and Martha Moon 497

Myocardial sarcocystosis in a grand eclectus parrot (Eclectus roratus) and a Moluccan cockatoo (Cacatua moluccensis) Kenneth S. Latimer, Richard W. Perry, In P. Mo, Jerome C. Nietfeld, W. L. Steffens III, Greg J. Harrison, and Branson W. Ritchie 501

Guidelines for authors 506

CONTENTS—JULY–SEPTEMBER 1990

History of avian medicine in the United States. X. Control of coccidiosis W. Malcolm Reid 509

Further characterization of an avian adenovirus associated with inclusion body hepatitis in bobwhite quails ..... S. W. Jack and W. M. Reed 526

Virulence factors of avian Escherichia coli Marilda C. Vidotto, Ernst E. Müller, Júlio C. de Freitas, Amauri A. Alfieri, Ivens G. Guimarães, and Diógenes S. Santos 531

Comparison of enzyme-linked immunosorbent assay with dot immunobinding assay for detection of antibodies against Pasteurella multocida in turkeys K. H. Choi, S. K. Maheswaran, and T. W. Molitor 539

Pathogenesis of Salmonella enteritidis infection in laying chickens. I. Studies on egg transmission, clinical signs, fecal shedding, and serologic responses H. L. Shivaprasad, J. F. Timoney, S. Morales, B. Lucio, and R. C. Baker 548

Avian nephritis virus infection of chicks: virology, pathology, and serology J. Shirai, K. Nakamura, M. Narita, K. Furuta, and H. Kawamura 558

Possibilities of bacteremia and toxemia in death of chickens infected with Eimeria tenella Eiichiroh Baba, Kuniko Kawamoto, Tsuneo Fukata, and Akira Arakawa 566

Toxicity of dietary monensin in quail S. G. Sawant, P. S. Terse, and R. R. Dalvi 571

Evaluation of sodium dodecyl sulfate–polyacrylamide gel electrophoresis purified proteins of Mycoplasma gallisepticum and M. synoviae as antigens in a dot-enzyme-linked immunosorbent assay Alan P. Avakian and Stanley H. Kleven 575

The relationship between the hemagglutination-inhibition test and the enzyme-linked immunosorbent assay for the detection of antibody to Newcastle disease .. JOHN BROWN, R. S. RESURRECCION, AND T. G. DICKSON 585

Influence of Campylobacter jejuni cecal colonization on immunoglobulin response in chickens
MARGARET A. MYSZEWSKI AND NORMAN J. STERN 588

Influence of antibody treatment of Campylobacter jejuni on the dose required to colonize chicks ..... NORMAN J. STERN, RICHARD J. MEINERSMANN, AND HARRY W. DICKERSON 595

Influence of host lineage on cecal colonization by Campylobacter jejuni in chickens
NORMAN J. STERN, RICHARD J. MEINERSMANN, NELSON A. COX, J. STAN BAILEY, AND LEROY C. BLANKENSHIP 602

Factors affecting the development of respiratory disease complex in chickens
W. B. GROSS 607

Restriction endonuclease analysis of Mycoplasma synoviae strains
C. J. MORROW, K. G. WHITHEAR, AND S. H. KLEVEN 611

Effect of dietary lactose on cecal pH, bacteriostatic volatile fatty acids, and Salmonella typhimurium colonization of broiler chicks
DONALD E. CORRIER, ARTHUR HINTON, JR., RICHARD L. ZIPRIN, ROSS C. BEIER, AND JOHN R. DELOACH 617

Biological control of Salmonella typhimurium in young chickens
ARTHUR HINTON, JR., DONALD E. CORRIER, GEORGE E. SPATES, JAMES O. NORMAN, RICHARD L. ZIPRIN, ROSS C. BEIER, AND JOHN R. DELOACH 626

Efficacy of maduramicin ammonium against coccidiosis in turkeys under laboratory and floor-pen conditions
LARRY R. MCDOUGALD, A. LORRAINE FULLER, GREG F. MATHIS, AND GUAN T. WANG 634

Evaluation of chicken heterophil adherence
CLAIRE B. ANDREASEN, KENNETH S. LATIMER, AND W. L. STEFFENS 639

Serotyping of Haemophilus paragallinarum by the Page scheme: comparison of the use of agglutination and hemagglutination-inhibition tests
P. J. BLACKALL, L. E. EAVES, AND G. AUS 643

Differentiation of vaccine strains and Georgia field isolates of infectious laryngotracheitis virus by their restriction endonuclease fragment patterns
JAMES R. ANDREASEN, JR., JOHN R. GLISSON, AND PEDRO VILLEGAS 646

Chlamydiosis in captive raptors
MURRAY E. FOWLER, TERRY SCHULZ, ALEX ARDANS, BRUCE REYNOLDS, AND DARRELL BEHYMER 657

Elimination of mycoplasmal plate agglutination cross-reactions in sera from chickens inoculated with infectious bursal disease viruses
T. Ross, M. Slavik, G. Bayyari, and J. Skeeles 663

Effect of dietary lactose on salmonella colonization of market-age broiler chickens
Donald E. Corrier, Arthur Hinton, Jr., Richard L. Ziprin, and John R. DeLoach 668

Vaccination of 1-day-old chicks with fowlpox virus by the aerosol, drinking water, or cutaneous routes
É. Nagy, A. D. Maeda-Machang'u, P. J. Krell, and J. B. Derbyshire 677

Enteric disease in specific-pathogen-free turkey poults inoculated with a small round turkey-origin enteric virus
David E. Swayne, M. Judith Radin, and Y. M. Saif 683

Cystic testicular degeneration in furazolidone toxicosis of sexually immature ducks ..... Dale M. Webb and John F. Van Vleet 693

The relationship of Cryptosporidium sp. infection of the bursa of Fabricius, intestinal tract, and respiratory system of chickens in Georgia, 1974–1988
Mark A. Goodwin, John Brown, and Oscar J. Fletcher 701

A survey for parvovirus-like virus (so-called chick anemia agent) antibodies in broiler breeders
Mark A. Goodwin, John Brown, Martin A. Smeltzer, Charles K. Crary, Theodore Girchik, Sharon L. Miller, and T. G. Dickson 704

Recombinant DNA probes for Mycoplasma synoviae
Shaohua Zhao and R. Yamamoto 709

Characterization of the toxicity of the mycotoxins aflatoxin, ochratoxin, and T-2 toxin in game birds. I. Chukar partridge
M. D. Ruff, W. E. Huff, and G. C. Wilkins 717

Serological detection of experimental Salmonella enteritidis infections in laying hens ..... Richard K. Gast and C. W. Beard 721

Cytopathic effect of lentogenic strains of Newcastle disease virus in cultured chicken muscle cells ..... Steven Palmieri and Joyce D. Bennett 729

Chicken anemia agent: an electron microscopic study
M. S. McNulty, W. L. Curran, D. Todd, and D. P. Mackie 736

Comparison of the dot blot hybridization assay with antigen detection assays for the diagnosis of infectious bursal disease virus infections
K. S. Henderson and D. J. Jackwood 744

Intracloacal Salmonella typhimurium infection of broiler chickens: reduction of colonization with anaerobic organisms and dietary lactose
RICHARD L. ZIPRIN, DONALD E. CORRIER, ARTHUR HINTON, JR., ROSS C. BEIER, GEORGE E. SPATES, JOHN R. DELOACH, AND MARCEL H. ELISSALDE 749

Research Notes—
Use of a hypobaric chamber as a model system for investigating ascites in broilers
R. L. OWEN, R. F. WIDEMAN, JR., A. L. HATTEL, AND B. S. COWEN 754

Effect of exposure to a short-duration sound on the stress response of chickens ..... W. B. GROSS 759

Case Reports—
A small round virus associated with enteritis in turkey poults
Y. M. SAIF, L. J. SAIF, C. L. HOFACRE, C. HAYHOW, D. E. SWAYNE, AND R. N. DEARTH 762

An ectopic wing in a wild black vulture (Coragyps atratus)
STEVEN A. OSOFSKY, TOM P. BROWN, AND COLIN B. CARRIG 765

Sudden death syndrome in turkey hens
DAVID E. SWAYNE AND Y. M. SAIF 770

Squamous-cell carcinoma of the pharyngeal cavity in a Jersey black giant rooster ..... R. P. CHIN AND BRADD C. BARR 775

Pet Bird Medicine—
Characterization of a gram-positive bacterium from the proventriculus of budgerigars (Melopsittacus undulatus)
CHARLES M. SCANLAN AND DAVID L. GRAHAM 779

Pet Bird Medicine: Case Reports—
Herpes viral hepatitis in a toucan
B. R. CHARLTON, B. C. BARR, A. E. CASTRO, P. L. DAVIS, AND B. J. REYNOLDS 787

Small intestinal cryptosporidiosis in cockatiels associated with Cryptosporidium baileyi-like oocysts
DAVID S. LINDSAY, BYRON L. BLAGBURN, AND FREDERIC J. HOERR 791

Guidelines for authors 794

CONTENTS—OCTOBER–DECEMBER 1990

AAAP awards 797

Award of Merit—Office International des Epizooties 802

The pathogenesis of velogenic Newcastle disease virus infection of chickens of different ages and different levels of immunity
L. Parede and P. L. Young 803

Early pathogenesis in chicks of infection with an enterotropic strain of infectious bronchitis virus .....A. G. Ambali and R. C. Jones 809

The effect of serologically defined major histocompatibility complex haplotypes on Marek's disease resistance in commercially bred white leghorn chickens
J. J. Blankert, G. A. A. Albers, W. E. Briles, M. Vrielink-van Ginkel, A. J. C. Groot, G. P. te Winkel, M. G. J. Tilanus, and A. J. van der Zijpp 818

The incidence of perirenal hemorrhage syndrome in six flocks of market turkey toms
Rodney K. Frank, John A. Newman, Sally L. Noll, and George R. Ruth 824

Perirenal hemorrhage syndrome in market turkey toms: effect of management factors
Rodney K. Frank, Sally L. Noll, Mohammed El Halawani, John A. Newman, David A. Halvorson, and George R. Ruth 833

Genetic-environmental interactions and antibody response in chickens to two antigens ..... W. B. Gross and P. B. Siegel 843

Effect of beta carotene on disease protection and humoral immunity in chickens
Robert P. Tengerdy, Nicola G. Lacetera, and Cheryl F. Nockels 848

Characteristics of Salmonella spp. and Escherichia coli isolated from broiler flocks classified as "good" or "poor" producers
Kathy R. Spears, Richard E. Wooley, John Brown, Oscar J. Fletcher, and Janet B. Payeur 855

Evaluation of two monoclonal antibodies for serotyping Haemophilus paragallinarum
P. J. Blackall, T. Yamaguchi, Y. Iritani, and D. G. Rogers 861

Tissue tropism of three cloacal isolates and Massachusetts strain of infectious bronchitis virus ..... Benjamín Lucio and Julius Fabricant 865

Outer-membrane proteins of Haemophilus paragallinarum
P. J. Blackall, D. G. Rogers, and R. Yamamoto 871

Characterization of circulating antibodies against Chlamydia psittaci in turkeys
ALLEN E. JENSEN, ARTHUR A. ANDERSEN, JAMES P. TAPPE, JR., AND CHARLES O. THOEN 878

Serum resistance as an indicator of virulence of Pasteurella multocida for turkeys
TERESA Y. MORISHITA, KURT P. SNIPES, AND TIM E. CARPENTER 888

A monoclonal antibody-based immunoperoxidase procedure for rapid detection of infectious bronchitis virus in infected tissues ... SYED A. NAQI 893

Serological and molecular characterization of three enteric isolates of infectious bronchitis virus of chickens
KEMAL KARACA, SYED A. NAQI, PETER PALUKAITIS, AND BENJAMIN LUCIO 899

Anticoccidial efficacy of diclazuril in broilers under simulated natural conditions in floor pens
LARRY R. MCDOUGALD, BARBARA P. SEIBERT, GREG F. MATHIS, AND CAREY L. QUARLES 905

Anticoccidial efficacy of diclazuril against recent field isolates of Eimeria from commercial poultry farms
LARRY R. MCDOUGALD, GREG F. MATHIS, AND BARBARA P. SEIBERT 911

Pathogenesis of H13 nephropathogenic infectious bronchitis virus
G. D. BUTCHER, R. W. WINTERFIELD, AND D. P. SHAPIRO 916

Characterization of two new monoclonal antibodies against Haemophilus paragallinarum serovar C hemagglutinating antigen
T. YAMAGUCHI, S. TAKIGAMI, Y. IRITANI, AND Y. HAYASHI 922

Fowl cholera in California multiplier breeder turkeys: 1985–86
THOMAS W. CAMPI, TIM E. CARPENTER, DAVID W. HIRD, KURT P. SNIPES, AND DWIGHT C. HIRSH 928

Analysis of B complex polymorphism in Rous sarcoma progressor and regressor chickens with B-G, B-F, and B-Lβ probes
ANNE-MARIE CHAUSSE, PIERRICK THORAVAL, FRANCOISE COUDERT, CHARLES AUFFRAY, AND GINETTE DAMBRINE 934

Differentiation of pathogenic and nonpathogenic Escherichia coli isolated from poultry ..... B. PANIGRAHY AND LING YUSHEN 941

Biological diversity among serotype 2 Marek's disease viruses
R. L. WITTER, L. F. LEE, AND J. M. SHARMA 944

Characterization of Pasteurella multocida mutants of low virulence
MARGIE D. LEE, JOHN R. GLISSON, RICHARD E. WOOLEY, AND JOHN BROWN 958

Pathogenicity and serovar-specific hemagglutinating antigens of Haemophilus paragallinarum serovar B strains
T. YAMAGUCHI, P. J. BLACKALL, S. TAKIGAMI, Y. IRITANI, AND Y. HAYASHI 964

Glycoconjugate heterogeneity among five strains of Mycoplasma gallisepticum ..... C. B. THOMAS AND P. SHARP 969

Efficacy of experimental Newcastle disease water-in-oil oil-emulsion vaccines formulated from squalane and squalene
HENRY D. STONE AND ZHIXUN XIE 979

Fingerprinting of Mycoplasma gallisepticum strains isolated from multiple-age layers vaccinated with live F strain
S. H. KLEVEN, M. I. KHAN, AND R. YAMAMOTO 984

Research Notes—
Isolation of Salmonella enteritidis from internal organs of experimentally infected hens ..... RICHARD K. GAST AND C. W. BEARD 991

Long-segmented filamentous organisms observed in poults experimentally infected with stunting syndrome agent
C. ROSELINA ANGEL, JERRY L. SELL, JANE A. FAGERLAND, DONALD L. REYNOLDS, AND DARRELL W. TRAMPEL 994

Differentiation between antibodies to serotypes 1 and 2 infectious bursal disease viruses in chicken sera ..... N. M. ISMAIL AND Y. M. SAIF 1002

Case Reports—
Pasteurella haemolytica as a co-pathogen in pullets and laying hens
DANIEL P. SHAW, DIANE BOULEY COOK, SAMUEL K. MAHESWARAN, CYNTHIA J. LINDEMAN, AND DAVID A. HALVORSON 1005

Infectious coryza in meat chickens in the San Joaquin Valley of California
R. DROUAL, A. A. BICKFORD, B. R. CHARLTON, G. L. COOPER, AND S. E. CHANNING 1009

Pet Bird Medicine—
Plasma concentrations of enrofloxacin in African grey parrots treated with medicated water
KEVEN FLAMMER, D. P. AUCOIN, D. A. WHITT, AND S. A. PRUS 1017

Pet Bird Medicine: Case Reports—
Mycobacterium infection in a gray-cheeked parakeet
G. D. BUTCHER, W. M. REED, R. W. WINTERFIELD, AND A. NILIPOUR 1023

Cryptosporidium sp. infection in the proventriculus of an Australian diamond firetail finch (Staganoplura bella: Passeriformes, Estrildidae)
BYRON L. BLAGBURN, DAVID S. LINDSAY, FREDERIC J. HOERR, ALVIN L. ATLAS, AND MARIA TOIVIO-KINNUCAN 1027

Guidelines for authors 1031

Tables of Contents, 1990 1033

Index 1043

PUBLISHED FOUR TIMES A YEAR AT KENNETT SQUARE, PENNSYLVANIA, BY THE AMERICAN ASSOCIATION OF AVIAN PATHOLOGISTS, INC. (ISSN 0005-2086) Subscriptions in the U.S., territories and possessions thereof, $50.00 a year. For all other subscriptions, $60.00 a year. Checks should be made payable to *Avian Diseases*. Send to: Avian Diseases, University of Pennsylvania, New Bolton Center, Kennett Square, Pennsylvania, 19348-1692. Subscription rates are subject to change without notice. **Postmaster please address corrections to address noted above.**

Claims for copies lost in the mail or defective copies must be received at the Kennett Square, Pennsylvania, office within 45 days (120 days foreign) of the date of issue to ensure free replacement.

Second-class postage paid at Kennett Square, Pennsylvania, and at additional mailing offices.

DISCLAIMER

No endorsements are implied herein, nor does mention of a chemical imply registration.

AUTHORS

Prospective authors should consult "Guidelines for Authors," which follows the final paper in this issue.

THIS PUBLICATION IS PRINTED ON ACID-FREE PAPER.